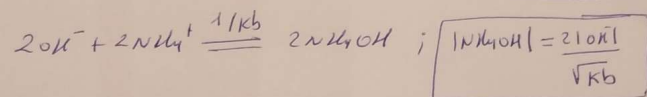
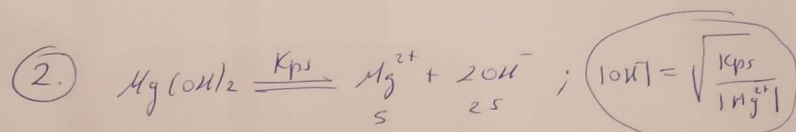


K2 (A) 1L de 0.2M de NH_4Cl ; ¿se podrán disolver 5.8g Mg(OH)_2 ?



$$2S = 2|\text{Mg}^{2+}| = |\text{OH}^-| + |\text{NH}_4\text{OH}|$$

$$2|\text{Mg}^{2+}| = \sqrt{\frac{K_{ps}}{|\text{Mg}^{2+}|}} + 2 \cdot \sqrt{\frac{K_{ps}}{|\text{Mg}^{2+}|}} \cdot \frac{1}{\sqrt{K_b}}$$

$$2|\text{Mg}^{2+}| = \sqrt{\frac{K_{ps}}{|\text{Mg}^{2+}|}} \left(1 + \frac{2}{\sqrt{K_b}} \right)$$

Elevarlo al cuadrado ambos términos:

$$4|\text{Mg}^{2+}|^2 = \frac{K_{ps}}{|\text{Mg}^{2+}|} \left(1 + \frac{2}{\sqrt{K_b}} \right)^2$$

$$|\text{Mg}^{2+}|^3 = \frac{K_{ps} \left(1 + \frac{2}{\sqrt{K_b}} \right)^2}{4}$$

$$|\text{Mg}^{2+}| = S = 8.75 \cdot 10^{-3} \text{ M}$$

$$\text{g Mg(OH)}_2 = 8.75 \cdot 10^{-3} \frac{\text{mol}}{\text{L}} \cdot 1 \text{ L} \cdot \frac{58.3 \text{ g}}{\text{mol}} = \boxed{0.51 \text{ g Mg(OH)}_2}$$

se disolverá

Nota: o haciendo con la K_{global} de los 2 equilibrios.
(Se obtiene igual resultado)